

LISTING OF CLAIMS:

Please consider the claims as follows:

1 1. (currently amended) Apparatus adapted for use in transmission in an
2 optical communication system, comprising:

3 a modulator, for modulating an optical phase of pulses within a sequence of
4 return-to-zero (RZ) pulses in accordance with an input digital data stream to form an
5 optical phase modulated signal, said modulator being one of phase shift keying (PSK),
6 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK)
7 modulator; and

8 a means for applying transmitting the optical phase modulated signal to in a
9 dispersion managed optical transmission medium;

10 wherein dispersion management is provided by quasi linear transmission of
11 applying pre-dispersion compensation to the optical phase modulated signal containing
12 pulses having a duty cycle of less than or equal to about 33%, and applying post-
13 dispersion compensation to the transmitted signal with a very short duration compared to
14 a bit period, and said pulses disperse very quickly as they propagate along said
15 transmission medium.

2. (canceled)

3. (canceled)

1 4. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a phase shift keying (PSK) modulator.

1 5. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a differential phase shift keying (DPSK) modulator.

1 6. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a quadrature phase shift keying (QPSK) modulator.

1 7. (previously presented) The invention defined in claim 1 wherein said
2 medium is a long haul transmission medium adapted for transmitting solitons.

8. (canceled)

1 9. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further includes a wavelength division multiplexer adapted to combine an
3 output signal of said modulator with other optical phase modulated signals having optical
4 carriers with different wavelengths.

1 10. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO₃ phase modulator.

1 11. (previously presented) The invention defined in claim 1 wherein said
2 modulator is a LiNbO₃ Mach-Zehnder phase modulator.

1 12. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a delay demodulator for receiving the
3 optical phase modulated signal from the dispersion managed optical transmission
4 medium.

1 13. (previously presented) The invention defined in claim 1 wherein said
2 apparatus further comprises a receiver including a balanced receiver for recovering said
3 input data from the phase modulated signal.

14. (canceled)

1 15. (previously presented) The invention defined in claim 1 wherein said
2 transmission medium includes discrete or distributed means of erbium-doped fiber
3 amplification (EDFA) or Raman amplification.

1 16. (currently amended) A method of transmission in an optical
2 communications, comprising the steps of:

3 modulating an optical carrier signal in a sequence of return-to-zero (RZ) pulses;
4 modulating an optical phase of said pulses in accordance with an input digital data
5 stream to form an optical phase modulated signal via one of phase shift keying (PSK),
6 differential phase shift keying (DPSK) or quadrature phase shift keying (QPSK); and

7 applying transmitting said optical phase modulated signal to in a dispersion
8 managed optical transmission medium;

9 wherein dispersion management is provided by quasi-linear transmission of
10 applying pre-dispersion compensation to the optical phase modulated signal containing
11 pulses having a duty cycle of less than or equal to about 33%, and applying post-
12 dispersion compensation to the transmitted signal with a very short duration compared to
13 a bit period, and said pulses disperse very quickly as they propagate along said
14 transmission medium.

17-18. (canceled)

19-20. (canceled)